

PATENT

IN THE CLAIMS

Please cancel Claims 1-10 and 19.

Please amend Claims 11, 12, and 14 – 18, and 20 as follows:

Claims 1-10 (Cancelled)

Claim 11 (currently amended): A micro-opto-electro-mechanical systems (MOEMS) designed for a scanning optical delay line, including:

- a) a grating;
- b) a kinoform shaped microlens having a focal length of F and placed at a distance F from the grating;
- c) a scanner mirror placed at a distance F from the lens and placed such that an incident wave traversing an incident path will be diffracted by the grating and directed through the microlens to strike the scanner mirror, the scanner mirror can be controlled over a range of scanning angles; and
- d) a bounced mirror placed in a path parallel to an incident beam path;

wherein each of the components are fabricated using MOEMS technology to ensure the alignment between components for achieving at least approximately 100 pico-second delays and the scanner mirror is controllable to direct the diffracted beam to the scanner mirror to strike the bounced mirror retro-reflecting the beam from the bounced mirror such that the beam retraces its path back through the system in a reciprocal manner, finally exiting from the system along the path it entered.

Claim 12 (currently amended): The MOEMS of claim 11, wherein the grating has a blaze selected and fabricated using MOEMS technology to enhance optical efficiency.

Claim 13 (original): The MOEM of claim 11, wherein the grating is designed for the particular electromagnetic frequencies of operation.

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Claim 14 (currently amended): The MOEMS of Claim 11, wherein the structure of the grating is selected based on the requirement of the imposed by a desired time delay.

Claim 15 (currently amended): The MOEMS of Claim 14, wherein the structure of the grating includes a physical dimensions in mm and a critical dimensions in line/mm for integrated circuit fabrications.

Claim 16 (currently amended): The MOEMS of Claim 11, wherein the wavelength λ of the incident wave is known, and the angle of incident incidence is selected to force the beam to have a maximum diffracted power in "-1 order".

Claim 17 (currently amended): The MOEMS of Claim 11, wherein the lens microlens has a focal length of F and is placed at a distance F from the grating.

Claim 18 (currently amended): The MOEMS of Claim 11, wherein the lens microlens is a simple achromatic lens fabricated using MOEMS technology.

Claims 19 (canceled)

Claim 20 (currently amended): The MOEMS of Claim 11, wherein the optical components and associate controls comprise a micro electro mechanical system (MOEMS) optical scanner, which enhances the scanning rate to several kilo Hertz.